Evelyn Gertz

IS GENOCIDAL BEHAVIOR LEARNED? ASSESSIING THE FAMILIAL TIES OF GENOCIDE PERPETRATORS.

On Sunday the killing began. Karimunda found his younger brother Philip and his nephew standing by the roadside with some other young men … We followed him and we burned houses. ... The next day the [hunting group] started at 7.00 a.m.

-- Jean-Paul, 38
(McDoom, 2014)

Samantha Powers, United States ambassador to the United Nations, designated the 20th century "the age of genocide" (Power, 2013). Since 1945, over 50 such events have occurred, causing more deaths than all internal and international wars combined (Harff, 2003). Social scientific research on instances of mass killing and violence stems back to post-World War II and examines the motives of Nazi killers (e.g., Adorno 1950). Since then, studies have accumulated at increasingly expanding rates, though explanations for the proliferation of "willing executioners" remain inconclusive (Goldhagen, 1997; Loyle, 2009; Waller, 2001; Owens et al., 2013). Much mystery still clouds how and why previously non-violent individuals become involved in genocidal killing processes.

In recent years, a small body of research has profiled the social networks of perpetrators and found evidence that social interaction influences participation in genocidal crimes (McDoom, 2014; Fujii, 2009; Straus, 2016). In line with Granovetter's simple yet powerful theoretical insight, these studies emphasize that genocidal behavior, like many forms of social behavior, is fundamentally embedded in prior social relations (Granovetter 1985, p.504; Fujii, 2009; McDoom, 2014). Further, it is not the quantity of ties in someone's social network that influences pathways into genocidal violence, but primarily the strength and type of tie. Small-

scale, interview-based studies reveal that interaction with family members who perpetrate genocide play particularly prominent roles in the radicalization process (McDoom, 2014; Fujii, 2009).

Stemming from this research, I advance knowledge on perpetrators' pathways into genocidal violence through systematically investigating the relevance of siblings' crimes. Utilizing the entire collection of Rwanda's *Gacaca* court trials, the largest database of genocide perpetrators in history, I assess how the patterning of sibling ties among Rwanda's genocide perpetrators are linked to characteristics of offenses. To do so, I focus on the extraordinary events in 1994 Rwanda, in which approximately one in five ethnic Hutus mobilized to perpetrate genocidal crimes (McDoom, 2014). Over the span of a few months, at least 800,000 individuals were killed,[1] millions were displaced, and many others were the victims of sexual violence, property attacks, and torture.[2] Critically, this violence was often perpetrated by groups, and was marked by uniquely high levels of civilian participation (Straus, 2006).

After reviewing scholarship on the motivations and behaviors of genocide perpetrators, I explicate how the criminological theory of differential association provides a set of formal propositions to examine whether radicalization in genocidal behavior is learned through siblings. I then discusses prior research on the relationship between siblings and deviant behavior, before turning to an overview of the *Gacaca* court data. Finally, employing hierarchical generalized linear modeling, I assess how siblings' crimes predict perpetration of distinct types of genocidal offenses.

[1] Estimates range from 800,000 to 1.2 million individuals.
[2] The violence also involved torture, sexual violence, property crimes, and displacement (African Rights, 1995).

Literature Review

I. What Constitutes Genocidal Crime?

Copious writing is devoted to the definition of genocide (Owens et al., 2014). In 1948, contracting parties present at the United Nations Convention on the Prevention and Punishment of the Crime of Genocide formally codified it as "acts committed with intent to destroy, in whole or in part, a national, ethical, racial or religious group," and declared it illegal under international law (Schabas, 2005). However, while the legal codification provides an operational definition, it suffers from several limitations. Perhaps most saliently, perpetrators do not always publicize their intentions as clearly as Hitler did in 1925's Mein Kampf, in which he articulately proposed the extermination of a people (Harff, 2003).

Further, individual participation in genocide may not always be so deliberate (Loyle, 2014). While the state[3] typically affects the scale of genocidal violence, generally through offering "scripts" for participation, it does not fully determine exactly who participates or what types of crimes someone commits (Fujii, 2009, p.18). Thus, in line with Rwanda's *Gacaca* courts, the justice system instituted by the country subsequent to the mass violence, I conceptualize genocidal crimes as acts of direct and indirect violence committed during a genocide, regardless of intent.[4] Direct violence includes person-to-person violence, such as murder or assault. Indirect violence includes looting and property theft (see Brown 2016). Both direct and indirect violence are crimes of genocide as outlined by international law, and both forms of violence occurred during the 1994 genocide in Rwanda.

[3] Extensive scholarship on genocide establishes that the state is key to understanding the onset of genocidal violence (Davenport 2007).

[4] While some scholars disagree as to the classification of property theft as genocidal crime, Rwanda's *Gacaca* courts condemned it as such due to how widespread it was.

II. Individual Theories of Genocide Participation

Research on genocide is generally divided between theories focusing on structural factors and those relating to the individual (Loyle, 2009). The latter, which are more limited, are driven by three major foci: psychological aberration, personal life conditions, and group membership (Loyle, 2009, p.27). In their research on Nazi killers, Browning, Milgram, and Arendt profiled individual perpetrators and concluded that they were "ordinary men" responding to group norms and bureaucratic obedience structures, rather than ideological fanatics (Arendt, 1963; Browning, 1993; Milgram, 1974). Studies pertaining to perpetrators of genocides other than the Nazi Holocaust generally follows suit. Straus' 2006 interviews with perpetrators of the Rwandan genocide suggest that the demographic distribution of the killers largely resembled the adult Hutu male population. They, too, were emphatically *ordinary*.

Regarding personal life conditions, scholars have speculated as to whether persons dissatisfied with their social, economic, or political situation utilize violence to settle scores – either emotionally and materially (Loyle, 2009; Andre and Platteau, 1998). In the political science conflict literature, this theory is referred to as "the expression of individual grievances" (Loyle, 2009; Staub, 1989). In these types of situations, participation in conflict may be more likely when "private goods" are offered to an individual (Lichbach, 1995; Loyle, 2009). Although analyses of individual gains are under-developed in the perpetrator literature, conflict studies emphasize the efficacy of "selective incentives" in compelling individuals to violent action (Gurr, 1970; Loyle, 2009, p.29-30).

Finally, some studies suggest that belonging to particular social groups can influence one to act against his or her particular value structure (Loyle, 2009; Kuper, 1983). In instances of genocide, individuals may be more likely to engage in violence if other members of their social

networks are also participating, generally out of fear of social sanctions. Thus, according to research in this vein, stronger social structures within communities will actually increase an individual's incentive to participate, through legitimating acts of violence (Fujii, 2009; McDoom, 2014; Loyle, 2009). This finding helps explain some of the considerable communal variation previous scholars have found in terms of participation in the Rwandan genocide (Straus, 2006; Davenport and Stam, 2008; Nyseth Brehm, 2015).

Fujii's (2009) and McDoom's (2014) research falls in this latter camp. Fujii (2009, p.30), building on the work of Straus (2006), disaggregated the Rwandan genocide and investigated the innumerable decisions made by ordinary Rwandans who "killed, rescued, and resisted … pillaged, profited, and protested" through 82 in-depth interviews. Ultimately, she finds that non-elite "foot soldiers" of the genocide joined the *Interahamwe* killing sprees because of personal relationships with local, self-interested politicians, rather than ethnic hatred or fear. Specifically, political leaders used family ties as avenues of recruitment (Fujii, 2009, p.187). Moreover, through surveying 116 members of a demographically representative sector in southwestern Rwanda, McDoom (2014) found that for every additional family member who participated in the violence, the odds of the related individual participating increased by 75 percent. For McDoom, family members were more predictive of participation than economic, social, or religious ties.

Fujii (2009) and McDoom's (2014) research attests to the powerful significance of interaction with genocidal family members as to *whether* someone perpetrates a genocidal crime. However, the exceptional scale of genocidal violence depends not only on who participates, but the particular type of offense someone commits. Had Hutus in 1994 Rwanda committed only crimes against property, up to one million people would not have lost their lives. Thus, it is critical to further investigate how familial relations influence perpetration of direct versus

indirect genocidal offenses, such as murder versus property theft, to understand both why and how the genocidal violence escalated to such an extraordinary degree. To do so, I turn now to a discussion of the criminological theory of differential association and prior research on the relationship between siblings and crime.

III. Differential Association Through Siblings

Stephen Smith, the Executive Director of the Aegis Trust, aptly noted in 2004 that "the Nazis did not kill six million Jews…nor did the *Interahamwe* kill a million Tutsis, they killed one, and then another, and then another … Genocide is not a single act of murder, it is a million acts of murder." In other words, despite its central organization, genocide is, essentially, a series of crimes. As such, in 2005, Hagan and colleagues (2005, p.555-6) implored criminologists to initiate the study of genocide, as well as of other war crimes and crimes against humanity, to apply well-tested theories of deviant behavior to wide-scale civilian participation in political violence (Pickett et al., 2014.

A foundational criminological theory, differential association proposes that criminal behavior is learned through a process of social interaction, and that most learning takes place within intimate groups (Sutherland and Cressey, 1978). More specifically, intimate social ties provide definitions both favorable and unfavorable to violation of law, and motives for crime are a function of the ratio of these associations presented to someone (Sutherland and Cressey, 1978). Critically, differential association further maintains that individuals are exposed to *specific* techniques for committing *particular* types of offenses (Sutherland and Cressey, 1978; Burgess and Akers, 1966, p.141). To understand the behavior of the corporate white collar criminal versus the corrupt cop, differential association directs researchers to examine the values

and mores of key members of the individual's social circle (Sutherland and Cressey, 1978; Burgess and Akers, 1966, p.141).[5]

Extensive research has examined processes of social learning within families, and has demonstrated a number of salient patterns pertaining to the role of siblings. Controlling for the roles of parents and peers, siblings' alcohol and substance abuse (Whiteman et al., 2013; Carbone-Lopez and Miller, 2012), antisocial behavior (Herrenkohol et al., 1999), and deviant social ties (Ardelt and Day, 2002) are strongly predictive of similar types of outcomes. Further, these effects do not differ by ethnicity, race, family structure, or the quality of the sibling relationship (Ardelt and Day, 2002). Given such a plethora of evidence, some scholars have postulated that the family environment may be the key factor in understanding the etiology and development of deviant behavior (Grych and Fincham, 1990; Yahia and Norsi, 1998).

Further, nearly every major terrorist attack on Western soil has involved siblings, with three sets of Saudi brothers among the 19 hijackers who carried out the September 11th attacks (Yardley et al., 2016). The macabre list also includes the Kouachi brothers, who gunned down 12 people in the Paris offices of the French satirical newspaper Charlie Hebdo, the Tsarnaev brothers, who perpetrated the 2014 Boston Marathon bombings, and the Barkraoui brothers, who detonated suicide vests at the Brussels airport in March of 2016. As Yardley et al. explicate, the mechanisms underlying this phenomenon may be multitude. Siblings "radicalize each other while reinforcing a sense of purpose and ideological calling. They keep watch on each other to ensure an attack is carried out … they can communicate easily … and the glue of family can often – though not always – serve as insurance against one [betraying the mission]" (Yardley et al., 2016).

[5] Akers developed Sutherland's propositions to emphasize the role of social reinforcement.

The studies cited above attest to the important role of siblings as modelers of deviant values and behaviors, in terms of political violence as well as more common forms of deviance. However, there is a dearth of studies examining the differential impact of exposure to specific types of anti-social behavior (for an exception, see Yahia and Norsi, 1998). Further, while some studies have explored the relevance of social learning in non-Western contexts, no research to date explores the applicability of social learning to crimes committed in the context of genocide. This research thus addresses these conspicuous lacunas.

Data

On 6 April 1994, the plane carrying President Habyarimana was shot down on descent into Kigali. Immediately, Hutu extremists seized power and began systematically hunting down and murdering Tutsis and Hutu moderates. While government leaders were largely responsible for orchestrating the genocide, there was vast popular participation, including particularly high levels of civilian participation without formal recruitment. Judges, doctors, and priests took part in the genocide by murdering their neighbors, looting houses, or raping individuals (Mamdani 2001; Hatzfeld 2006; Straus 2006; Nyseth Brehm et al., 2014). As stated above, over the span of a few months, at least 800,000 individuals were killed, millions were displaced, and many others were the victims of sexual violence, property attacks, and torture.

After the 1994 genocide, Rwanda instituted the *Gacaca* courts, a justice system unique to the country, as a mechanism to both bring perpetrators to justice and initiate a healing process for the country. *Gacaca* means grass, and as the name implies, the *Gacaca* courts were held outside in empty markets, schoolyards, and other public places within each community (Nyseth Brehm et al., 2014. Lay members of the community who were 21 years or older, held no previous convictions, and had not served in a government role during the genocide, were selected as

lawyers and judges. The *Gacaca* justice system consisted of 12,000 courts and resulted in 1,456,574 convictions, though this number refers to trials not people. Individuals who perpetrated multiple crimes had separate trials for each crime he or she committed in each administrative district where it occurred (Nyseth Brehm et al., 2014).

Gacaca law divided the genocidal crimes into the following three categories based on their relative severity:[6]

- *Category One (2.79% of trials):* People accused of planning, organizing, or supervising the genocide; people who acted in positions of authority or leadership at high levels; people who incited genocide; and people who committed acts of rape or sexual torture.[7]
- *Category Two (25.24% of trials):* People or accomplices who intentionally killed someone or injured someone through acts intended to kill her or him; people who committed dehumanizing acts on the dead, torture, and other criminal acts against other people.
- *Category Three (71.97% of trials):* People who committed offenses against property, such as looting.

Through a partnership with the Rwandan National Commission for the Fight against Genocide, Ohio State University professor Dr. Brehm obtained all of the records from the trials. The *Gacaca* trial database includes basic demographic and familial information about the perpetrators, including sex, date of birth and family identifiers, as well as the relevant information from the their trials: whether they were found guilty, the punishment, the category of the crime, and the date of the trial. As category one trials represent such a minute percentage of

[6] The courts were originally designed with four categories of crime.
[7] Those in the higher levels of this category who were not sent to the International Criminal Tribunal for Rwanda — which tried those who were thought to be key orchestrators of the violence—were tried in the regular court system. Those tried in the *Gacaca* included people who supervised or incited violence, people at some levels of power within the government (such as mayors), and people who committed rape and sexual torture.

the data, and primarily involved individuals in unique positions of power such as members of the interim government, they are not included in this study. Rather, I restrict my analysis to category two perpetrators of violence and category three perpetrators of property crimes, as theses constitute over 97 percent of the data and represent "ordinary" members of 1994 Rwandan society. Importantly, category three property crimes constitute the non-violent ("indirect") genocidal offenses.

The Current Study

The present study assesses the relevance of siblings' behavior in genocide as a predictor of violent ("direct") versus non-violent ("indirect") genocidal violence. The massive scale of death that occurred during the 1994 genocide in Rwanda was a result of wide-scale civilian participation in general as well as perpetration of particular types of offenses. Understanding the factors that shaped property offenders radicalization into violent crime is thus crucial for understanding the magnitude and duration of the genocide.

Further, the decision to focus on property offenders represents a counterfactual approach to the data. The court records allow for the quantification of the question, what are the odds of property offenders with violent siblings *also* committing violent crime, compared to the odds of property offenders without violent siblings committing violent crime? This approach allows me to best estimate the discrete effects of siblings. In total, there are 359,249 individuals who perpetrated a property offense, 32,358 of whom also perpetrated a violence offense. Thus, stemming from Sutherland's theory of differential association, which proposes that individuals learn specific techniques for particular types of offenses, I incorporate the following hypotheses into my model.

H1: Perpetrators of property crime ("indirect" genocidal violence) will have no

statistically significant difference in odds of perpetrating violent crime ("direct" genocidal violence) if they have property offending siblings only, compared to property offenders with no criminal siblings.

H2: Property offenders will have higher odds of committing violent crime if they have violent-only offending siblings, compared to property offenders with no criminal siblings.

H3: Property offenders will have higher odds of committing violent crime if they have violent and property offending siblings, compared to property offenders with no criminal siblings.

Dependent Variable

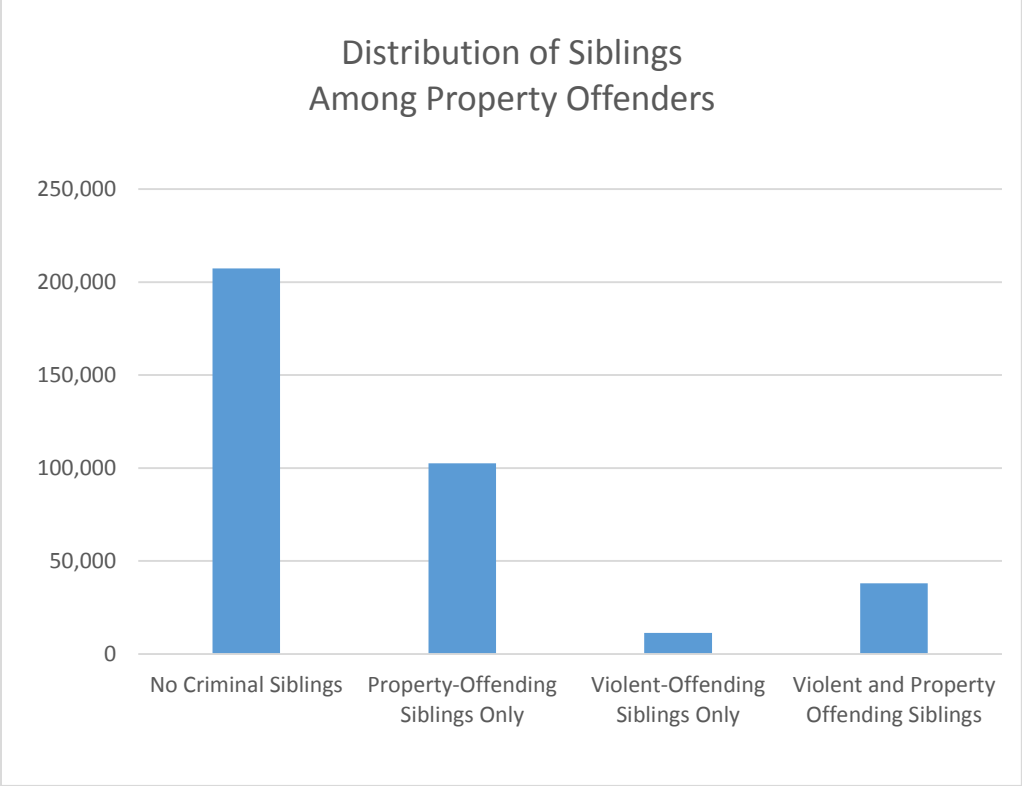
I utilize as my dependent variable individual perpetration of violent (direct) genocidal crime, a category two *Gacaca* offense, versus non-violent (indirect) genocidal crime, a category three *Gacaca* offense. Violent ("direct") genocidal crime is coded as one and non-violent ("indirect") genocidal crime is coded as zero.

Independent Variables

My key independent variables are also derived from the *Gacaca* data and reflect the property offender's siblings' crimes. I utilize a categorical variable to capture the types of possible crimes siblings perpetrated. The four categories reflect whether an individual property offender had: (1) no siblings who committed genocidal crimes, (2) property-offending siblings only, (3) violent-offending siblings only and (4) property and violent offending siblings. The first category, no criminal siblings constitutes the reference group, as it provides a means to

compare the effect of criminal siblings on the odds of perpetration of violent crime. Tellingly, of the 369,031 individuals who committed a property offense, 152,018 had at least one sibling who perpetrated a genocidal crime.

The chart below demonstrates the distribution of siblings among property offenders. As we see in the figure, the majority of this group do not have criminal siblings. However, over 102,556 property offenders have siblings who exclusively committed property offenses (indirect genocidal violence), 11,432 have siblings who exclusively committed violent offenses (direct genocidal violence), and 38,030 have siblings who committed both violent and property offenses (direct and indirect genocidal violence).



Control Variables

I incorporate two sets of control variables. The first set reflect individual characteristics of the property offender and are derived from the *Gacaca* database. These include age and sex – which scholars have often suggested hold "invariant" relationships with crime (Gottfredson and Hirschi 1990). The model age of this group is 30, though the individuals range from ages six to 79, and approximately 90 percent of them are male. As stated above, some scholars have theorized that individuals perpetrate genocidal crimes due to "selective incentives." While the *Gacaca* database includes the individuals' occupations, which could be an appropriate measure for socioeconomic status and thus capture variation in incentives, over 99 percent of property offenders were farmers, thus rendering it meaningless to include this variable in the model.

The second set of control variables, the majority, are obtained from the 1991 Rwanda Census and reflect characteristics of Rwandan communes (IPUMS International 2012). In 1994, Rwandan communes were small areas governed by mayors who wielded much local power (Wagner, 1998; Nyseth Brehm, 2015), including often directing violence when the genocide began (Des Forges, 1999: 236-237). Futher, beginning in 1990, residents needed permission to move into and out of their communes (Verwimp, 2013: 270; Nyseth Brehm, 2015).

The 1991 census occurred less than three years before the genocide and provides the best estimates of 1994 measures of communes. The census provides the best data that exist for many of the measures, and the Minnesota Population Center cleaned the data for use in academic research (IPUMS International, 2012; Nyseth Brehm, 2015). As Rwanda conducted both a *de facto* and *de jure* census—meaning they counted present residents, absent residents, and visitors—the data are restricted to present and absent residents to avoid double counting.

Individual-level data are aggregated to commune means and children are excluded for variables that only pertain to adults (Nyseth Brehm, 2015).

Prior research demonstrates that communes across Rwandan experienced considerable variation in violence during the 1994 genocide. Two theoretical processes likely drove this variation, "top-down" and "bottom-up" effects. Top-down processes reflect the fact that the state planned and influenced patterns in violence at subnational levels. Specifically, state-led targeting of Tutsis impacted rates of violence, as there was more violence in areas with higher percentages of Tutsis. Proximity to the capital city Kigali – the extremist center of the violence – influenced higher rates of killing, as did the presence of the frontline. Thus, I include in my analyses a measure of the percentage of Tutsis in a commune, a dichotomous variable for communes within the national capital, and a dichotomous variable reflecting the presence of the frontline at any time.

Finally, "bottom-up" violence refers to the fact that although state actors planned the genocide, the government relied on civilians to accomplish its goal (Straus, 2006; Fujii, 2009). The interim government encouraged Hutus to form "self-defense" groups and pre-emptively kill as many Tutsis as possible (Nyseth Brehm, 2015). Several hundred thousand Rwandans responded accordingly (Mamdani, 2001; Straus 2006). As Nyseth Brehm (2015) states, "Neighbors killed their neighbors, pastors killed members of their congregations, and teachers killed their students, resulting in the widespread erosion of social ties and relationships of trust" (Nyseth Brehm, 2015). On the other hand, the majority of Hutus did not take part in the genocide, reflecting that a commune's level of social cohesion influenced mezzo-level rates of violence. Thus, stemming from prior research, I incorporate measures in my models reflecting

the social cohesion of a community, including the percentage of residents in a commune who were married and the percentage who were formally employed.

I incorporate the individual- and commune-level control variables to test whether potential effects of siblings hold when accounting for variable rates of violence. In other words, I control for whether the siblings' effects variables are indeed a reflection of this social learning phenomenon or rather a result of higher versus lower rates of violence in different communes across the country. Thus, importantly, I also add a measure capturing rates of deaths per communes. This measure was obtained by Dr. Brehm from a survey conducted by the Rwandan Ministry of Local Administration and Community Development (2004) and the National University of Rwanda. This number is transformed into a logged rate that standardizes on killings per 10,000 people in each commune.

Table 1. Descriptive Statistics for Dependent, Independent, & Control Variables

	Property Offenders Who Also Perpetrated Violence	**Property Offenders Only**
	Total: 32,358	**Total: 336,673**
Dependent Variable	**Percent/Mean(SD)**	**Percent/Mean(SD)**
Perpetration of Violent Crime	100%	0%
Sibling Effects' Variables	**Percent/Mean(SD)**	**Percent/Mean(SD)**
No Criminal Siblings	38.91%	59.54%
Property-Offending Siblings Only	28.16%	28.54%
Violent-Offending Siblings Only	7.17%	2.8%
Violent- and Property-Offending Siblings	25.76%	9.12%
Individual-level Control Variables	**Percent/Mean(SD)**	**Percent/Mean(SD)**
Age	32.99 (9.50)	34.99 (11.48)
Male	98.04%	88.43%

Commune-Level Control Variables	Percent/Mean(SD)	Percent/Mean(SD)
Tutsi	11.3 (8.48)	12.52 (7.87)
Capital	0.28%	0.38%
Frontline	76.86%	76.68%
Married	55.72(4.61)	55.02(5.14)
Formally Employed	10.12(4.60)	10.23(4.59)
Average deaths per commune (logged)	8.943 (.77)	8.79(.85)

Analytic Strategy

As stated above, individuals had separate trials for each crime he or she committed in each administrative district where it occurred. Thus, I first converted the database from one of trials to one of people. I accomplished this by matching perpetrators on three key variables: their own last name, their father's last name, and their mother's last name. In Rwanda, family member typically do not share the same last name, so matching on three distinct sets of text ensures the validity of capturing unique individuals. Next, I matched siblings according to shared parents' last names. Individuals whose mother and father shared the same last name were classified into sibling groups. I then generated a median age for each sibling group, and dropped siblings who fell outside of 15 years of that median age to account for unlikely matches and outliers.

Then, to assess the effects of criminal siblings on the odds of property offenders' perpetrating violence, I estimated four hierarchical generalized linear models. Hierarchical modeling, also known as multilevel modeling, "is a type of multiple regression analysis applied

to variables that can be best understood in context, or that can be seen as being in a series of levels of analysis, with each higher level including the lower levels" (Vogt et al., 2014, p.327). Simple OLS regression does not allow for analysis of hierarchical context, because it assumes each predictor variable is measured independently (Vogt et al., 2014, p.327). Hierarchical modeling, however, controls for context variables, for the fact that individual-level effects are sometimes incorporated in higher- level effects. Thus, hierarchical generalized linear models allow me to account for the nested structure of the perpetrators both in sibling groups and in discrete Rwandan communes. More specifically, hierarchical generalized linear modeling accounts for my nested structure and binary outcome.

Table 2. Hierarchical Generalized Linear Modeling of Sibling Effects on Perpetration of Violent Genocidal Crime

	Model 1		Model 2		Model 3		Model 4	
	Coefficients(SE)	**Odds Ratios**	**Coefficients(SE)**	**Odds Ratios**	**Coefficients(SE)**	**Odds Ratios**	**Coefficients(SE)**	**Odds Ratios**
Sibling Effects								
Property-Offending Siblings Only	0.40 (0.08)***	1.50	0.32(0.07)***	1.38	0.39(0.09)***	1.48	0.31(0.08)***	1.37
Violent-Offending Siblings Only	1.25(0.3)***	3.50	1.18(0.28)***	3.27	1.22(0.33)***	3.40	1.17(0.31)***	3.21
Violent- and Property-Offending Siblings	1.32(0.20)***	3.77	1.22(0.18)***	3.38	1.27(.21)***	3.59	1.17(0.19)***	3.23
Individual-Level Control Variables								
Age			0.00(.00)	1.00			0.01(.00)	1.01
Age^2			-0.00 (.00)***	0.99			-0.00(.00)***	0.99
Male			-2.01(.02)***	0.13			-1.93(.02)***	0.15

Commune-Level Control Variables				
Tutsi	-0.007(0.01)	0.99	0.01(.01)	0.99
Capital	-0.07(0.51)	0.92	-0.18(0.47)	.83
Frontline	-0.04(0.12)	0.97	-0.02(0.12)	0.98
Married	-0.02(0.01)*	0.98	-0.02(.01)*	0.98
Formally Employed	-0.00(0.01)	0.99	-0.00(0.01)	0.99
Deaths per commune (logged)	0.26(0.10)**	1.29	0.29(0.20)**	1.33

* p < .1, ** p <.05, ***p < .01

Results

Model 1 introduces the first block of variables, assessing the effects of siblings' crimes on the odds of property offenders committing violence. Model fit statistics indicate that the model is a better fit than one with no predictors. Results are presented in odds ratios, and no criminal siblings is the reference group. The three comparison groups are all significant at $p<.05$, indicating that there is a statistically significant difference in the odds of a property offender with any type of criminal siblings committing violence versus the odds of a property offender with no criminal siblings committing violence.

For property offenders with property-only offending siblings, the odds of committing a violent crime are 1.5 times higher than those with no criminal siblings. For property offenders with violent-only offending siblings, the odds of committing a violent crime are 3.5 times higher than those with no criminal siblings. Finally, for property offenders with violent- *and* property-offending siblings, the odds of committing a violent crime are approximately 3.77 times higher than those with no criminal siblings.

The results are an interesting divergence from the differential association hypotheses. Sutherland's theory, which suggests that individuals learn specific techniques for particular types of offenses from intimate social ties, proposes that siblings who commit violent genocidal crimes would be strongly predictive of any individual behaving similarly. Indeed, these results are strongly echoed in the models. Property offenders with violent siblings – regardless of whether those siblings committed just violent crimes or violent *and* property crimes – have over 3.5 times higher odds of committing a violent offense compared to those with no criminal siblings. However, the results also indicate that property offenders with property-only offending siblings have higher odds of committing a violent offense as well. Thus, exposure to *any* type of

genocidal crime, either violent or non-violent, leads to higher odds of property offenders perpetrating violence.

Model 2 introduces individual-level controls, age and sex. Due to the curvilinear distribution of age, the variable is squared. While both age and sex are significant, they do not substantively alter the magnitude of the sibling effects. In other words, after accounting for the fact that the majority of violent offenders were young men in their 20s and 30s, the effects of criminal siblings are still salient. Among property offenders, violent-only offending siblings as well as violent- *and* property-offending siblings yield over three times higher odds of perpetration of genocidal violence, while property-only offending siblings yield 1.38 higher odds of genocidal violence. Again, these results clearly indicate that it is not only the types of crimes siblings commit that are impactful, but the fact that siblings engage in any type of genocidal activity, whether it is direct or indirect.

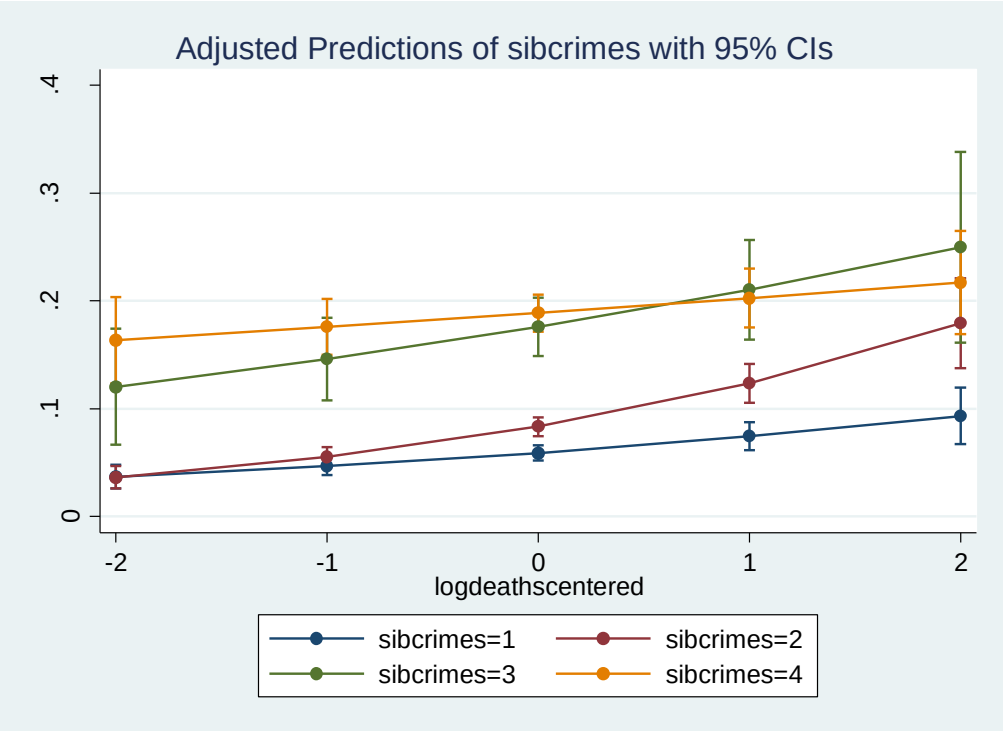
Turning to model 3, this block introduces the commune-level control variables. Importantly, these measures control for variable rates of violence across different communities, as driven by "top-down" state-driven polices and "bottom-up" factors pertaining to social cohesion. None of the three "top-down" variables are significant, indicating that while these factors are associated with higher rates of death per commune (Nyseth Brehm, 2015), they are not predictive of property offenders' perpetration of violent crime. Regarding the two measures of social cohesion – marriage and employment – only marriage is significant ($p<.05$), suggesting that social cohesion among a commune may play only a small role regarding the types of genocidal offenses someone commits. Finally, the rate of deaths per commune is significant at a smaller p-value ($p<.01$) and a stronger magnitude. With every increase of 10,000 deaths, the

odds of property offenders committing violent genocidal crime increase by 1.29, compared to those with no criminal siblings.

Model 4, the full model, includes the full set of controls, both on the individual and commune level. Most importantly, the effects of criminal siblings remain substantively unchanged. Controlling for age and sex of the offenders, as well as variable rates of violence across communes, the effects of criminal siblings still hold. Property offenders with violent siblings are over three times as likely to perpetrate violence themselves, and property offenders with property-only offending siblings have 1.33 higher odds of perpetrating a violent genocidal offense, compared to those with no criminal siblings.

The unexpected effects of property-only offending siblings, alongside the magnitude and significance of the rates of deaths across communes, suggests that effects of siblings' crimes may be conditional according to the level of violence within a community. Indeed, the graph below demonstrates such an interaction. Across all levels of violence, those whose siblings perpetrated violence only as well as violence and property offenses (sibcrimes == 3 and 4, respectively) have consistently higher predicted probabilities of perpetrating violent crime.

However, the unexpected relationship involves siblings who perpetrate property offenses. At lower levels of deaths, there is little difference between those with no criminal siblings (sibcrimes == 1) and property-only offending siblings (sibcrimes == 2). However, as the rate of deaths across communes increases, property-offending siblings generate increasingly higher predicted probabilities, and at the highest rates of deaths, there is no statistically significant difference in the odds of perpetrating violent crime between those with property-offending siblings only or those with violent-offending siblings.



Discussion

This research has tested the proposition that siblings' crimes predict perpetration of particular types of genocidal offenses. Small-scale, interview based studies indicate that genocidal crimes are learned through family. While suggestive, these studies are limited in their generalizability. Drawing on sociological criminology, this research systematically assessed how the patterning of sibling ties were linked to characteristics of offenses in the 1994 genocide in Rwanda.

Extensive research shows the applicability of differential association, a social learning theory of deviance, in regards to siblings. However, no research to date has applied such a proposition regarding pathways into genocidal offenses. Further, studies pertaining to differential association and siblings typically reflect *whether* someone engages in deviant behavior. This

study extends this framework to test whether siblings' behavior predicts not only deviant behavior but particular types of deviant behavior.

Sutherland's propositions, as applied to violent ("direct") versus non-violent ("indirect") genocidal crimes generally hold true, with an important caveat. Indeed, property offenders whose siblings perpetrated violent crime were significantly more likely to also perpetrate violent crime themselves, compared to property offenders with no criminal siblings. However, property offenders whose siblings only perpetrated property offenses-only were *still* more likely to perpetrate violent genocidal crimes than those with no criminal siblings. Further, as rates of death increase, there is no statistically significant difference between having property-only offending siblings or violent siblings. Exposure to any type of genocidal crime is likely to increase the odds of committing a violent offense.

This research is not without limitations. First, the *Gacaca* data do not include the date of the criminal offense, so research examining the chronology of familial genocidal crimes would greatly benefit this argument. Likewise, research incorporating the criminal backgrounds of individual perpetrators would further shed light on different pathways into radicalization. Finally, the *Gacaca* data do not allow for identification of *fictive kin*. As imaginary ties of choice, fictive kin are unrelated by either blood or marriage and employ a standard cultural typology (Sussman 1976; Gubruim and Buckholdt 1982). In other words, unrelated individuals sometime become "adopted" family members who fulfill the affection, obligations and duties of "real" kin). Thus, fictive kin may be equally as pertinent to influencing genocidal behavior as biological family.

Nevertheless, the research proposal presented here will considerably advance knowledge as to the social processes that contribute to individual radicalization. Differential association provides a means to theorize genocide as a type of social action and proposes that genocidal crimes, like other kinds of crimes, may be *learned* through social interaction. The uniqueness and specificity of the *Gacaca* data provided an invaluable means to test this theoretical proposition and thus generate new directions for research that examines why mass violence continues to occur in so many different social contexts across the world.

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